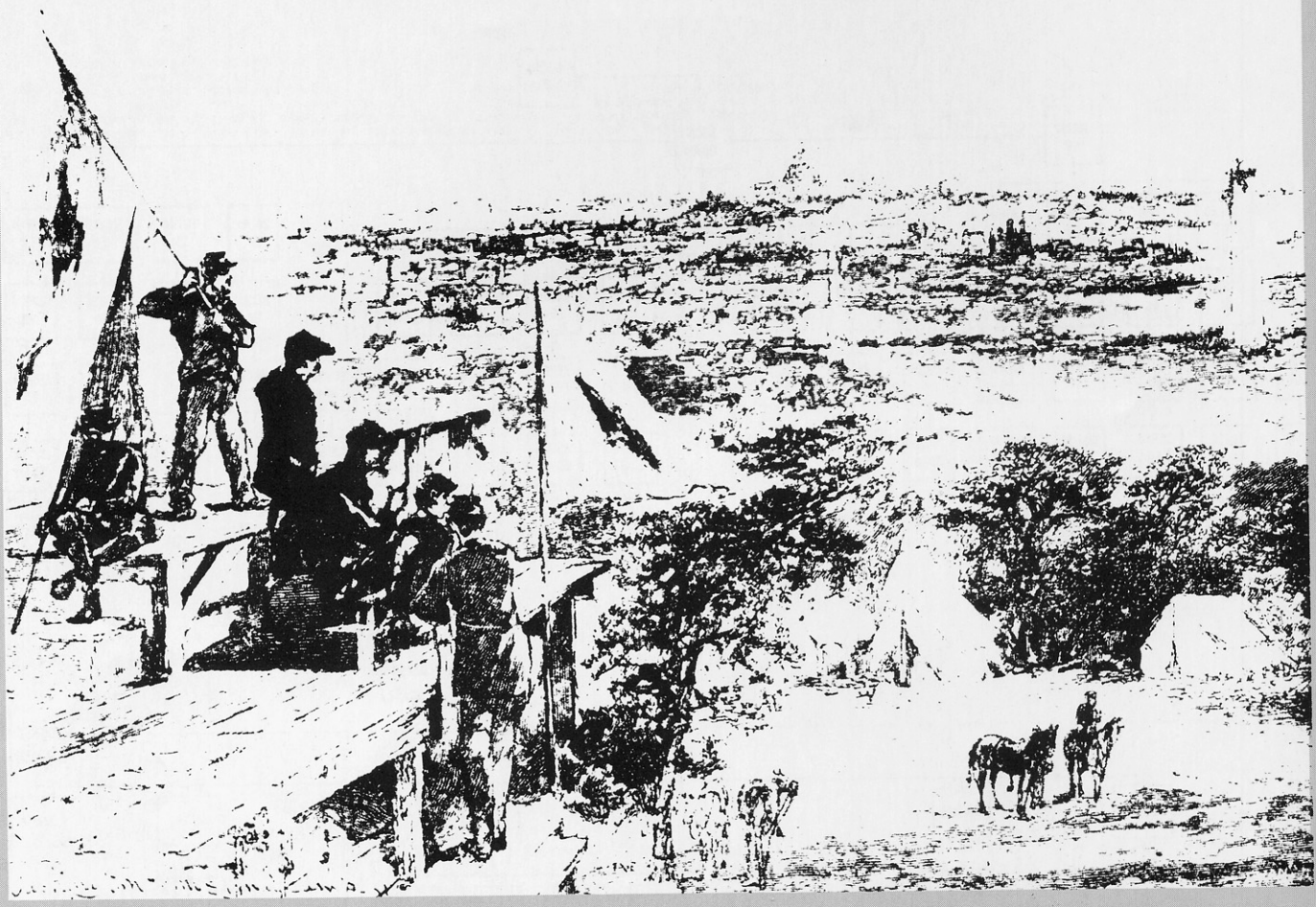


Notes from the papers of Lt. George N. Gray, 53rd Ohio Volunteers[1] and Acting Signal Officer[2]

Signal Officer's Basic Course Circa 1862

by Maj. Gen. John E. Hoover, U.S. Army retired

In August, 1861, Major Albert J. Myer, Signal Officer, U.S. Army, established a Signal Camp of Instruction at Red Hill in Georgetown, D.C. At this camp, officers and enlisted men who had been detailed from their regiments were trained in Myer's wig-wag system of signaling and associated subjects, including how to ride a horse. In the succeeding months, trained officers and men in "signal parties" were dispatched to major headquarters throughout the army where, in most cases, they were detailed from their regiments for signal instruction by the trained signal party.[3]

On the first of April, 1862, a signal party headed by Lt. J. B. Ludwick, and consisting of two additional officers and six privates, reported to Maj. Gen. Henry Halleck, sometimes referred to as "Old Brains," commanding at St. Louis. Halleck ordered the signal party to report to Gen. Grant, which they did on the sixth of April at Pittsburg Landing (or Shiloh) in the middle of that bloody battle.[4]

Soon after the battle of Shiloh, officers and men detailed for signal duty from their regiments were gathered at a camp of instruction at Paducah, Kentucky. Among these men was Lt. George N. Gray of the 53rd Ohio Volunteers, and from his papers we can get some idea about their instruction, which today we would probably call their Basic Course. The following information is quoted from Lt. Gray's notes on "Instructions to be observed by signal officers when establishing stations, opening communications and exchanging messages."[5]

1. In fixing upon a station great attention must be paid — first of all — to the background; which should contrast as much as possible with the color of the flag. If the background is dark the flag should be white and conversely. It must be selected so as to be in full sight of the opposite station and especially so that at night the foot-torch may be plainly visible.

2. If on a mountain top or in a wood — climb a tree to see the other station. Signals can be made from a tree-top — the signal officer remaining on the ground and calling off the orders. The man can fasten himself in the tree with a belt.

3. In dangerous localities choose a position as little exposed as possible and keep a careful lookout on all the avenues of approach.

4. After determining on a point the next thing to be attended to is the arrangement of a glass support which may be a heap of stones, two saddles lashed together, a temporary tripod of sticks, a post, a stump, a fence or anything furnishing a steady rest. In battle or at sea the glass will of necessity be held in the hand in which case the *Marine* glass [binoculars] will commonly be used, and when possible the naked eye....Construct the support so as to provide the operator a comfortable position for reading.... Stones or other heavy bodies should be placed on and about the glass in order to secure it in its place.

5. When you wish to open communications at night, or when an officer is sent off to establish a new station, or to open communications between points not before attempted, large fires should be built thus affording a visible object on which the glass at the other station can be fixed. Be careful however to place the fire at such a distance from the station point that its glare will not interfere with the lights from your flying or foot torches. Take such a position yourself that your view may not be disturbed by it.

6. Place your torchman immediately behind and near the foot-light so that when *fives* are made the lights will intermingle [in the four element code in common use during the Civil War, the letters of the alphabet were denoted by combinations of numbers 1 through 4, and there were standard motions of the flag or torch to represent these numbers. The number 5 was made by waving the flag or torch from the upright position over the head directly to the ground in front of the operator. One 5 indicated the end of a word, two 5s the end of a sentence, and three 5s the end of the message]. Put him also a little in advance of you on your right or left so as to be able to observe any mistake he makes. He should also when possible be concealed from the enemy and at a sufficient distance from you to prevent your eyes from being dazzled by the glare of the torch. Foot-lights should always be hidden from the enemy as it will render the reading by him of your messages impossible.

7. In the day when doubtful of your background attach a white and black flag to the same staff and have them swing for 15 minutes until recognized by the opposite station.

8. While calling attention sweep with your glass the whole country in the direction of the station sought. But when possible agree upon the exact spot beforehand at which the proposed station will be established and take its bearing by the compass, which being reversed when you reach the spot agreed upon will greatly assist in discovering the other station.

9. When the station sought for is thus found you at once proceed to secure firmly your glass in its support so that it will bear directly on it and then call its attention patiently until obtained. Or if you find you are perceived already — signal its number or call or answer any signals it may make thus opening communication.

10. To call attention use the six foot flag and the sixteen foot pole changing to the four foot flag and the twelve foot pole before sending messages.

11. Notice particularly that the flagman faces precisely the communicating station and that the movements are made exactly on his right and left.

12. Messages will either be received in writing and signed or reduced to writing and signed in presence of the officer sending before being sent.

13. Messages will commence thus "Off." 1.30 A.M. or P.M. to (here follows the name) 33. This indicates that the address is closed. Then follows the message. 55 making close of sentence. At the end make 44 signifying the message is signed. Then give the signature after which give the number of words in the message by using numerals as 6,7,8,10 etc., and 555 — down.

14. This is replied to thus after counting the words: 6,7,8,10 etc., and 555 — down.

15. No officer will leave his station nor cease watching the other station until 11. 11. 11. 555 [cease signaling] has been exchanged between stations.

16. So long as a flag is shown at either station flying and stationary, an officer or man will be left at the glass at the communicating station. This is a signal that the other station may be wanted at any moment.

17. Signal 444 appended to a message means 'get an answer immediately, I will wait and receive it.' This comes after the signature and before the 555 and *down.*

18. Time to be taken from the station of the senior officer present from which a flag will be shown stationary five minutes before the hour.

19. If nothing more is to be sent from either station each will say 11.11.11. 555.

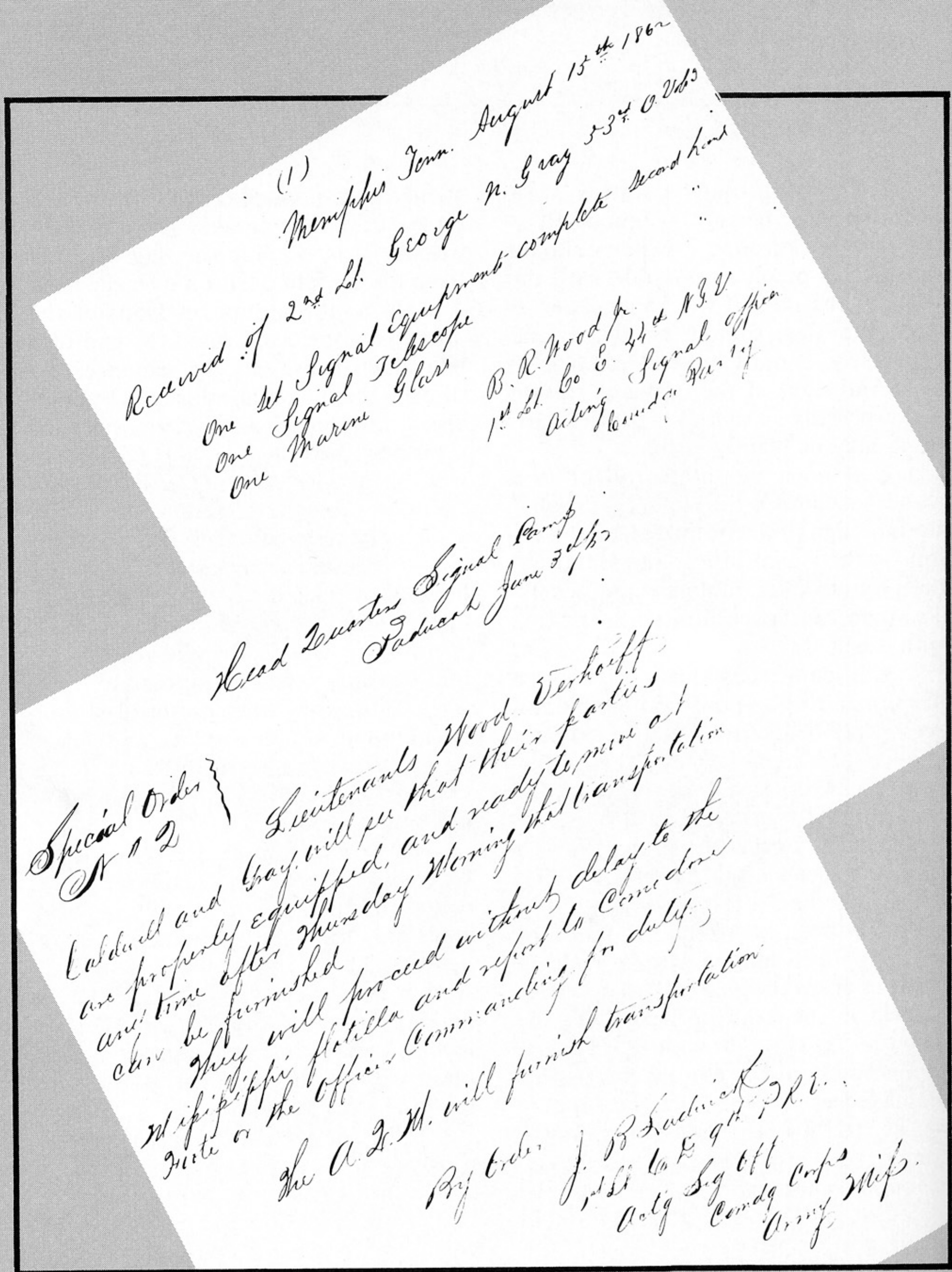
20. At dark glasses will be fixed bearing on the communicating station and will remain properly elevated and sheltered from the weather 'till next morning.

21. All stations will light foot-lights at 9 P.M. and 3 A.M. allowing them to burn five minutes.

22. At any hour of the night a rocket or a red light, when supplied, will be the signal for all stations to light up foot-lights and be in readiness with an officer at the glass to exchange signals.

23. A light shown at dusk or when it is growing dark is the signal that the other station is to use torches instead of flags. At dawn a foot-light shown a few moments and then extinguished indicates that the other station is to quit using its torches and put on its flag.

24. The officer at each station will see that a lookout through the glass is kept from his station so well that no signal may be shown at any time of the day for more than ten minutes without securing an answer. For this reason he will cause, when possible, his men to keep a regular glass-watch relieving each other every two hours day and night....



(1)
Memphis Tenn. August 15th 1862
Received of 2nd Lt. George N. Gray 33rd O. Vols
One Set Signal Equipment complete Second hand
One Signal Telescope
One Marine Glass
B. R. Wood Jr.
1st Lt. Co E. 44th N.Y.V.
Acting Signal Officer
Comdg Party

Head Quarters Signal Camp
Paducah June 3rd/63

Special Order No 2

Lieutenants Wood Verhoeff Caldwell and Gray will see that their parties are properly equipped, and ready to move at any time after Thursday Morning that transportation can be furnished

They will proceed without delay to the Mississippi flotilla and report to Comdore Porter or the Officer Commanding for duty.

The A.Q.M. will furnish transportation

By Order
J. B. Ludwick
1st Lt Co G 9th
Actg Sig Off
Comdg Corps
Army Miss.

25. When reading at the glass cover the head with a blanket or the cape of your overcoat especially in windy weather as it shuts out all other objects but the communicating station....

26. Accustom yourself to use both eyes at the glass as it prevents straining and soreness which will certainly be occasioned by keeping one eye shut and the other open for any length of time....

27. When receiving a message take *nothing* for *granted* and keep your eye carefully on the opposite station until you are sure it has made the last motion. See that your flagman makes no mistakes — uttering your orders to him very distinctly and making a short pause after each letter and number. When the message is lengthy pause after each sentence long enough to allow it to be written. Be careful of your spelling and the grammatical construction of your sentences.

28. When on a repeating station cause your flagman to repeat each letter and number as fast as you receive them. Every very *important* message should be repeated in order to insure its correct reception.

29. In bad weather cover the whole body of the glass except the object glass with a blanket or some other covering. In hot weather obtain a shade if you can, for in order to signal well the operator should at least be comfortable.

30. Allow no *listeners* about your station. If attacked destroy at once any message or important papers that may be in your possession. Carry no codes into the field.

31. In changing position watch the other flag and stop your flagman the moment it moves. Adjust and fix your glass before calling attention.

32. Signals can be made with a handkerchief in the hand, a musket, shirt, a branch of a tree or anything which can be seen. Different colored fires can represent as per previous agreement 1 or 2, or short and long, flashes or loud and soft sounds and so on *ad infinitum* in short there is scarcely any conceivable position in which men can be placed, in which one officer of any intervention or acquaintance with the system will not be able to open communications and exchange messages with another. Provided his locality can be seen and there might be cases in which even that would not be necessary.

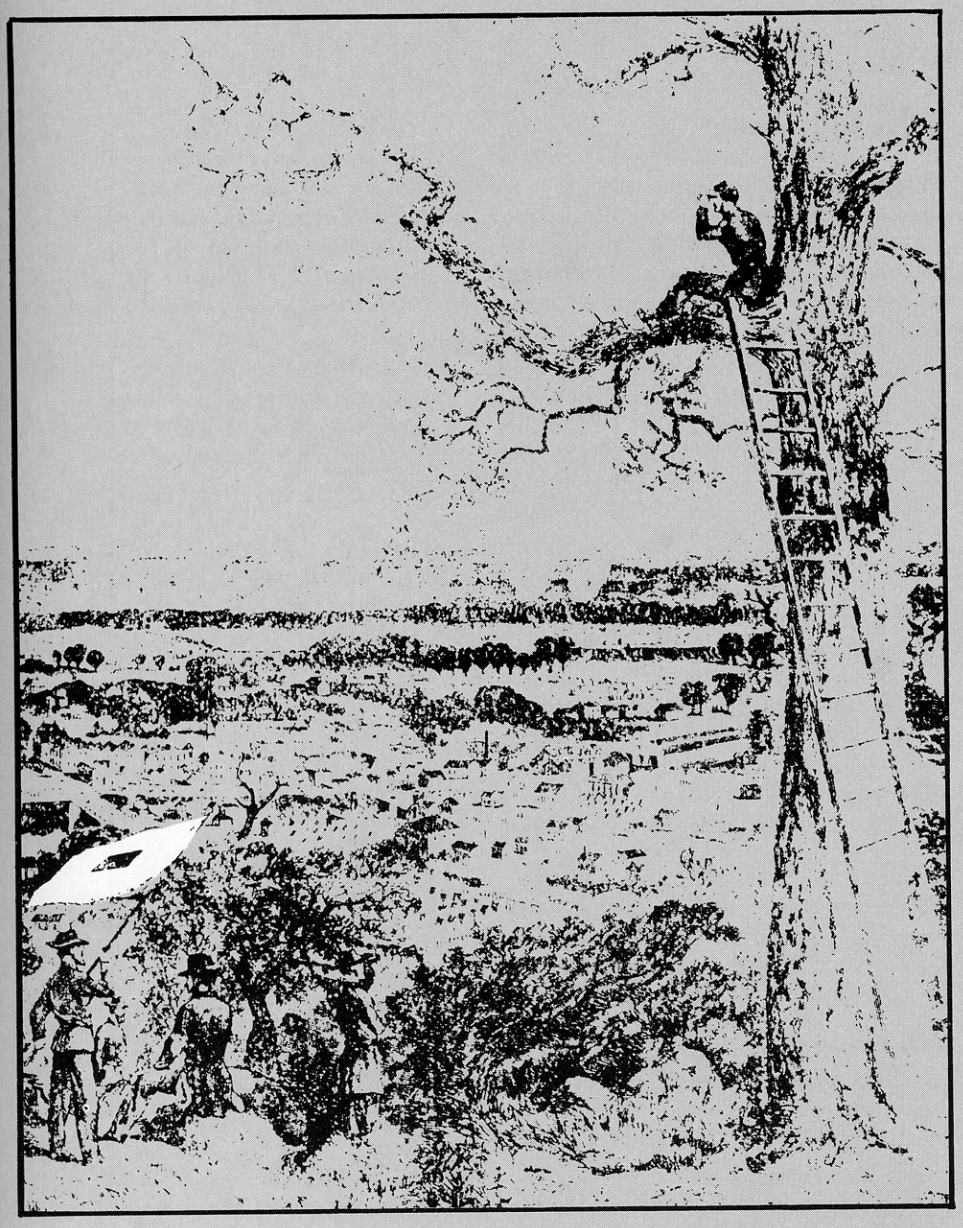
33. The flag will be kept flying to indicate the position of the officers. When in an exposed position officers and men will be down except when transmitting and receiving messages....

34. When there is the least trouble about the transmission of messages the six(6) foot flag and sixteen(16) foot pole will be used at sea and elsewhere. Each will with its first acknowledgement of signals from the other station indicate the flag to be used as follows: 11. 11. 11. W. W. W. (White flag) or 11. 11. 11. B. B. B. (Black flag) and give the number of receiving station.

35. The rolling of vessels interferes with the reading of messages. For this reason a (6) six foot flag and (16) sixteen foot pole should be used and the message be read with the natural eye or with a marine glass. Officers going to sea should on every opportunity practice between vessels.

36. Each signal officer will have a call by which he shall be known and to which he shall always reply.

37. The code of signals to be made by hoisting flags in the halyards when other signals can not be used will always be arranged and a copy of it kept by each officer. This is made before the expedition sails and after asking the commanding officer what messages he would like to have so arranged; a code of night signals to be made with composition lights [Cartridges



producing flares of different colors] will also be arranged and a code of rocket signals. These will not be used when the same messages can be sent by torches.

38. Each signal officer landing will have, carried by his men, some signal lights and some rockets. When a part of the troops are on shore and a part on ships as when landing on an enemy's coast the signal 'alls well' ought to be made at 10 P.M. and 3 A.M. This will be repeated by all ships.

39. Signal men will be kept wherever the forces may be on the lookout for signals.

40. When officers observe any station making their call they will always respond to it as soon as possible no matter whether previously instructed or not.

41. When an officer at the glass faces the same way as the opposite flagman he must remember that the numbers are reversed and change sides.

42. A station's call is the signal by which other stations call its attention. The station calling attention will make the signal for attention interspersing it however at frequent intervals with the call of the station to which the signal is directed....

43. When working fill the foot-torch without stopping or extinguishing the light. When it is necessary to fill the flying torch while at work drop it to the left, extinguish and fill in that position and then light again, bring it to the perpendicular and proceed as before. Stop to fill at the end of a word if unavoidable. Dropping a torch to the left and putting it out there is a signal that you have stopped to fill.

44. Be careful that your wick is properly adjusted. If too tight the torch will not burn, if too loose the fluid will escape and it will burn too rapidly. A medium between the two extremes will be sought and it will generally be found when the flame is about four inches in diameter.

45. When the torch gets too hot which will be known by the sighing and increased size of the flame stop for a few minutes and let the torch stand at a perpendicular 'till the flame has diminished to its proper size.

46. When the wind blows so that your flying torch can not be clearly seen, remove the flame shade and replace it by the wind shade, opening out the leaves so that they will stand in a cup shape and about two inches distant from each other at the top. Diameter of cup as found being about five inches at the top.

47. Be careful to fix the wind shade on the torch to bring the burning holes of the torch above the wind cap mentioned above.

48. Fill the flying torch on the average every 15 minutes otherwise though it may give a flame it will burn the wick to a cinder.

49. When the wind blows in such a manner as to make the foot-light difficult to be seen from the other station so fix the foot-light as to bring its flame shade in direct opposition to the wind and if this should not suffice build behind the foot-light a screen about two feet high and two feet long of stones and earth, boards or any other suitable material....When working in the presence of the enemy conceal your foot-torch from him by means of the temporary screens, keeping nevertheless in full view of the other station. It is impossible to read night signals unless the foot torch be in full view of the officer reading.

50. If practicable use a small fire as a foot-light and let the man keep it burning briskly while you are signaling. The flame should not be more than a foot in length or breadth.

51. In case of emergency torches may be constructed of pitch pine,

cordage, canvas, rags or other inflammable material saturated with tar or other combustible fluid. Lanterns may be used, one as a foot-light and one fixed to a pole as a flying torch. So may fire brands.

52. Before packing your torch have any fluid it may contain poured back into the canteen. Observe this particularly in ceasing work at night. One wick properly managed, if care be taken to keep the torch well filled while in use, will last for a week.

53. In opening a line cross a country, first take some prominent position from which find some other point in view and on or as near as possible to the exact line of direction you wish to take. On this retained point erect some kind of a beacon, a white or other colored signal flag or some marked object by which it can be recognized from a distance. Take the bearing of the point selected from the first point. This second point should not only be visable from the initial point but probably from a third beyond it. At the first point station an officer to reply to any signal he may see. Other officers are now moved by compass toward the second point selected carrying a signal flag flying and being intently watched by the officer left at the first station. From time to time the advancing party will put itself in communication with the first station so as to receive from it any directions of the course the first station may wish to give it or other important information. It will also frequently verify its course by the compass. On reaching the second station a beacon will be raised, observations made, communictaions opened with the first station, a third point chosen and a party sent forward as before. This operation will be repeated until terminal point is reached. Afterward attempts will be made to reduce the number of intermediate stations by finding other and better points.

54. Should an officer while running a line or reaching a station find himself able to communicate readily with one or more of the stations between his own and the first he will notify the unnecessary stations of the fact whereupon they will at once abandon their stations and proceed to the station giving them the information....

55. When a message is being transmitted through a number of stations, each signal officer will repeat in numbers each letter as he receives it to his flagman who facing toward the next station will instantly make it with his flag or torch. Each officer will wait until he perceives it repeated by the opposite station before sending another remembering that to read the repeating flag he must reverse the numbers.

56. When there are two officers on a station in repeating messages both must be present one to receive the message and the other to see that the next station repeats it properly.

57. Officers whose glasses have an adjusting double focus should when the light is dim use the short focus and when it is strong the long.

58. On fixed stations the glasses should not be taken from their support when signaling is ceased for a time....

59. To regulate the glass at night fix it on some brilliant star.

60. Signal parties are also reconnoitering parties and will always at frequent intervals scan carefully the whole country within their view especially in the direction of the enemy's lines and report all camps, movements, pickets, and bodies of troops or other facts which he may observe to the nearest commanding stations by signals if possible or otherwise by express. The same intelligence will also be conveyed to all signal stations in connection with them.

Signal Camp Paducah June 2d 1862

Geo. N. Gray

Upon the completion of his training, Lt. Gray received orders to the Mississippi flotilla. He, the other officers and eight flagmen reported to Commodore Davis, commanding the fleet at Memphis, Tennessee, on June 6th. Lt. Gray participated in the expedition from the Mississippi River up the White River to make contact with Gen. S. R. Curtis in Jacksonport, Arkansas. Missing the general there, the expedition returned to the Mississippi and travelled up that river as far as Helena, Arkansas, where they met Gen. Curtis and participated in operations along the Mississippi in the vicinity of Helena. During these operations, the signal party was kept busy communicating between the gunboats, the transports, and the troops on shore when they were deployed from the transports. While the expedition was at Helena, General Halleck issued an order disbanding the Signal Corps in his department. On August 15, 1862, Lt. Gray turned in his signal equipment.

AC

ENDNOTES

[1]I am deeply indebted to Col. William W.R. Purcell and the Gray family for granting me access to Lt. Gray's papers from which most of the contents of this article were derived.

[2]Until Congress authorized a Signal Corps in 1863, there was only one Signal officer authorized in the U.S. Army, Major Albert J. Myer; all other officers on signal duty were detailed to that duty as Acting Signal Officers.

[3]Brown, J. Willard, *The Signal Corps USA in the War of the Rebellion*, Arno Press, New York, 1974, p. 59 and *passim*.

[4]Brown, p. 461.

[5]Gray papers. All spelling and punctuation has been reproduced as it appears in the original. My comments appear in brackets.

[6]Brown, pp. 463-65. While there was no officially designated Signal Corps until 1863, the term was in common use in the U.S. Army by 1862.

Now retired, Maj. Gen. Hoover has served in a wide range of assignments in the United States, Europe, Japan, Korea and Vietnam. Among his many citations and decorations are the Legion of Merit (with OLC), the Bronze Star (with OLC) and the Joint Service Commendation Medal. He has eight service medals. A West Point graduate, Hoover also holds an M.A. from Georgetown University. He and his wife, the former Mary Jo Cox, have two daughters: Mary Kathryn and Holly.